INTERIM REPORT

TASK FORCE ON DISTANCE EDUCATION AND TECHNOLOGY

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TASK FORCE ON DISTANCE EDUCATION AND TECHNOLOGY

TERMS OF REFERENCE

1. Identify the role of distance education programs and the types of technologies to be employed in meeting the education and program needs of K-12 schools.

2. Identify the role of distance education programs and the types of technologies to be employed in meeting the education and program needs of post-secondary and adult programs and institutions.

3. Identify opportunities for cooperation and sharing of technologies and systems of technologies between K-12 and post-secondary and adult programs and institutions.

4. Identify funding sources, legislative changes and administrative regulations required to provide successful distance education programs.

5. Identify training needs of educators and support staff.

6. Identify the most effective organizational structure(s) for Distance Education and Technology in the future.

7. Submit an interim report for the Minister of Education and Training by the end of June, 1992.

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INTRODUCTION

> "In times of great change, learners inherit the earth; while the learned find themselves beautifully equipped to deal with a world that no longer exists."
>
> - Eric Hoffer

We the Task Force, recognize the nature and importance of the crisis in Manitoba's small schools.

Rural depopulation has been shrinking student enrollments in rural schools since 1930. As a result, rural residents have seen school after school close in their communities, and their children riding the buses further and further to receive an education. Throughout Manitoba, this trend has reached, and often exceeded, its rational limit. It cannot be considered reasonable for children to routinely endure a "school day" which is effectively longer than an adult "work day".

As well, there is strong and growing resistance in rural and northern Manitoba to the education of children outside of home communities. The community itself is a source of education in citizenship, and the interaction of small schools with their communities provides a sense of rootedness and belonging in children that is invaluable to their emotional well-being.

At the same time as rural depopulation has decreased the efficiencies in rural schools, and northern schools are struggling with the on-going problems of educating small numbers of geographically isolated students, the demands on public school education have greatly increased. Students are entering a highly competitive workplace on graduation, and need the educational opportunities to develop all of their talents and abilities if they are to have a reasonable chance to succeed.

It is also a highly technological workplace with which they are expected to be familiar.

An education which does not give students the options to develop their individual skills, or which does not prepare them to deal with technology, will severely limit their chances for success.

The dilemma for rural and northern school divisions, then, is a very hard one. There is a real need for quality, effective education of students in small numbers within their communities, but there is also a real limitation on the price which the local community, and the larger communities, will willingly pay to provide this education.

In seeking solutions, divisions are looking to the advancing communication technologies and the efficiencies they have provided for other sectors. From the survey done by the Task Force, it is clear that rural divisions see great potential benefits to the use of technology in addressing the need for effective small school education.

In preparing this report, we have attempted to summarize the potential value and uses of some of the technologies identified by school divisions as applicable to small school education. We have made recommendations which we feel will enable their effective use for this purpose.

However, in developing distance education technologies for use in small schools, we have found that a powerful, remarkably common vision is emerging amongst educational stakeholders. There is a strong sense that the time has come for a new educational infrastructure to be built, created by superimposing distance education technologies upon the existing K-12 system and developing close, cooperative partnerships between all educational sectors.

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Such an infrastructure would provide remarkable opportunities in education for all Manitobans, both child and adult.

Without question, distance education is a dynamic force that will enhance the way in which we design and deliver educational programs. It will enable us to seek new forms of collaboration and strategic partnerships. Through such partnerships, the resources and capabilities of all stakeholders can be tapped and effectively pooled to develop programs which are relevant and responsive to the needs of our students. Distance education technologies can help connect communities and create a dynamic educational infrastructure throughout the province. It is important for Manitobans, particularly those living in rural, northern and isolated areas, to have access to educational programs. Distance education enables people to remain and to flourish in their own communities. Distance education is an opportunity for us to:

- increase access to educational programs for all Manitobans regardless of geographic location or background
- enhance the integration of education components
- ensure more cost-effective programs
- explore programs and modes of delivery which are more environmentally sensitive than alternatives such as further busing of students
- respond to the public expectations for more educational choices in a rapidly changing society
- respond more effectively to our current environment characterized by severe fiscal restraint, depopulation of rural communities and rapid technological growth.

Given the tremendous opportunities associated with distance education coupled with the complex nature, magnitude and pace of change in technology, there is a need for a clearly defined direction for distance education in Manitoba. This direction must focus on the needs of our students and be shared by all stakeholders.

With a clear sense of direction, there is a way to:

- focus educational technologies in an efficient and effective manner
- foster collaborative discussions on distance education among stakeholders
- develop appropriate strategies, action plans and initiatives
- forge important partnership projects in distance education
- determine priorities in distance education

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A DIRECTION FOR DISTANCE EDUCATION

We, the Task Force, recommend that the ultimate mission of distance education be to establish community-based infrastructures for life-long learning which provide high quality education and training programs for all Manitobans.

Distance education technologies must be mainstreamed into the entire infrastructure of the education system. Given the immense possibilities and breadth of distance education, distance education will pertain to all levels and aspects of the education system from K - Senior 4 to post-secondary and will involve all functions of education such as curriculum development, teaching practices, special needs and others.

Taking into consideration the current social and economic needs of the province, we the Task Force recommend that for 1992-93, the priority in distance education be K-Senior 4, with a particular focus on small schools. This priority rests with the principle of equity and the need to respond to depopulation and scarcity of resources in rural, northern and isolated areas.

Given the dramatic changes and transformations in our society, we must ensure that our students are adequately prepared to meet the challenges and opportunities of the 21st Century. The prosperity of Manitoba is dependent on a highly-skilled, adaptable work force and an educated citizenry. Thus, a high quality education is crucial to the economic, social and cultural prosperity of our province. Because of its intrinsic qualities and far-reaching capabilities, distance education must play a vital role in carrying out the following goals of education and training.

- To increase levels of literacy skills and other basic skills such as critical thinking and problem solving.
- To increase rates of program completion for students.
- To increase the number of graduates from our education and training system with marketable work skills.
- To increase the number of graduates with the ability to be enterprising, to persevere with hard work, to take risks and to be diligent in all efforts.
- To increase levels of knowledge and skills in science and technology.
- To increase knowledge of, and concern for, the environment.
- To increase student involvement in, and responsibility for, their own learning.
- To increase respect among students and teachers.
- To increase student understanding and demonstration of fundamental values such as fairness, honesty, respect, aesthetic appreciation and social responsibility.
- To foster greater integration of components of the education and training system - more articulation and collaboration between educational institutions, more involvement of all partners in education and training, and more integration of subject disciplines.
- To increase public confidence in education and training programs and services.
- To improve standards of student performance.
- To increase participation of all partners in education and, in particular, increase participation of women, aboriginal people, immigrants and other under represented groups.

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In carrying out the mission, the Task Force recommends the following set of guiding principles and considerations;

- Equity. Distance education inherently has the capacity to ensure fairness and provide learning opportunities for all Manitoba students, regardless of background or geographic location.

- Accountability. Distance education technologies are high-cost ventures. We must endeavour to ensure that expected educational outcomes are realized through the most effective and efficient use of distance education technologies and programs.

- Integration. In order to increase the effectiveness and efficiency of programs and services, distance education must be integrated within and between education and training and social and economic systems.

- Excellence. Distance education programs must be educationally sound, inspire learning, and foster high achievements. This is an important consideration in the selection of distance education technologies and the development of programs.

- Partnerships. No one stakeholder or unit can take sole responsibility for distance education in this province. A successful distance education program calls for the participation of all institutions, agencies, groups and communities. It is recognized that partnerships are promoted by an environment that fosters trust, openness, respect, integrity and collaboration among all stakeholders.

- Recognition of building blocks. We must recognize the fact that we have many building blocks in distance education. Existing infrastructures such as school divisions and the Manitoba Telephone System definitely enable the provision of distance education programs. Other infrastructures could include regional development boards, other government departments such as Rural Development, Family Services and Health, and College boards. The task force believes that, building upon the base already established, schools in Manitoba can have access through technologies to dynamic educational opportunities to flourish in schools of all sizes.

Flexibility. Distance education programs must be designed to meet the diverse needs of students and communities. As well, the design of Distance education programs must be flexible to allow access to other interested partners (i.e., health, justice, social services, agriculture, communities, etc.)

Local Involvement and Participation. The sense of "community" is deeply cherished by Manitobans. Attributes of a healthy community include local decision-making, a high level of participation, and a strong sense of community cohesiveness.

These principles and considerations form the foundation for all recommendations of the Task Force on Distance Education. The recommendations identify the conditions and strategies necessary to carry out the mission, and address such aspects as: appropriate instructional design, adequate and appropriate funding levels and mechanisms, supporting roles and responsibilities of major Stakeholders, and appropriate selection of educational technologies.

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The recommendations are presented under the following categories:

- **SUPPORTING GOVERNMENT POLICIES AND PROGRAMS**
- **FUNDING**
- **DISTANCE EDUCATION TECHNOLOGIES AND IMPLICATIONS**
- **COMPUTER-ASSISTED LEARNING**
- **INTER-ACTIVE INSTRUCTIONAL TELEVISION**
- **SATELLITE-DELIVERED COURSES**

SUPPORTING GOVERNMENT POLICIES AND PROGRAMS

If distance education is to fully succeed, it requires the support of all government policies and programs. Some of these policies and programs include:

- Public Schools Act
- College Act
- University Act
- Canada/Manitoba Labour Market Agreement
- Strategic Plan
- Answering the Challenge
- Administrative Handbook
- MTS Act
- Canada Communication Act (CRTC)
- Others

We the Task Force recommend:

1. **that Manitoba Education and Training review legislation, regulations and administrative practices to ensure that they support the provision of distance education.**

2. **that Manitoba Education and Training or its designate examine all other applicable regulations relative to the delivery of distance education**

FUNDING

Funding mechanisms and levels must support the mission and guiding principles of distance education in the province. We the Task Force recommend:

3. **that primary funding for distance education come from the education community to include the Public Schools Finance Board, school divisions and Manitoba Education and Training.**

4. **that measures be taken to involve other federal and provincial government departments and agencies/users in cost-sharing arrangements.**

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5. **that in phase 2 the Task Force develop a funding structure that addresses:**
   - **capital costs**
   - **operating costs**
   - **cost sharing arrangements**

6. **that the Department of Education and Training review the uses and funding levels for the delivery of programs in distance education, to include Computer Assisted Learning, Satellite Teleconferencing, MINET, and Independent Study Programs for the purpose of determining program and cost effectiveness and the possible reallocation of those resources.**

7. **that additional categorical funding should be made available for training in distance education technologies.**

8. **that as technologies are developed, and school divisions adapt these technologies, the Department support and assist divisions at all stages of development.**

DISTANCE EDUCATION TECHNOLOGIES AND APPLICATIONS

The Task Force believes that the technologies identified in this report are all intended for use as teacher tools. If Manitoba's small communities, and particularly the small high schools, are to be provided with learning opportunities in an equitable way with urban schools, at a cost which the larger community can support, there must be mechanisms available which allow maximal efficiency in the use of teacher time. These mechanisms must also provide educational delivery of high quality and be accepted and "owned" by the teachers using them.

We the Task Force recommend:

9. **that any technology selected must facilitate good teaching practice, and that all stakeholders make every attempt to ensure this.**

10. **that the Minister of Education and Training urge the faculties of education in Manitoba to incorporate courses designed to instruct teachers in the use of distance education technologies in both undergraduate and graduate programs, and that they be encouraged to take a leadership role in developing and researching technological resources for use in education.**

11. **that the Department should supply ongoing training opportunities for teachers in the use of distance education technologies.**

12. **that to all stakeholders that adequate time be allocated for the planning, delivery and reception of distance education courses, and that instruction in these courses be integrated into the regular school timetable.**

13. **that the Manitoba Teachers' Society be encouraged to establish a special area group for distance education technologies.**

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The Task Force assumed that consideration of technologies needed to include an evaluation of their usefulness to the immediate and very pressing concerns of the small schools, and their applicability to systems for community-based life-long learning. The survey just completed of school divisions confirms that this view is supported by the K - 12 system, and that the technologies we selected were those which divisions also support. The subcommittee examined the individual technologies and their application to educational use and the summaries are appended. The following recommendations were based on the Task Force's review of these summaries.

The technologies considered:

COMPUTER-ASSISTED LEARNING

CAL has proven itself to be educationally sound, readily accepted by students and generally accepted by teachers. It builds on the structure of computers already within schools, and provides for the need for computer-literacy in the workplace. For all schools in Manitoba, the availability of curriculum-matched software would be a valuable educational resource. For the small high schools, it also provides opportunities for cost-efficiencies in course delivery. For life-long learning needs, it provides a marked degree of flexibility for use in adult up-grading and re-training.

We the Task Force recommend:

14. **that the department increase the production of Computer Assisted Learning Programs beyond the mathematics curriculum, including through expanded cooperative ventures with other provinces and other agencies.**

15. **that the department provide evaluative information concerning the pedagogical soundness and curriculum match of computer-based learning materials required to meet the needs of students and teachers in small high schools.**

16. **that the department conduct on-going research projects to investigate the application of various CAL products in small schools in Manitoba, and that the investigation of each product be completed within a year of that product's appearance on the market.**

17. **that the department establish pilot projects to outline the minimum hardware configurations required to establish an effective multimedia learning centre in small high schools in Manitoba.**

18. **that the department investigate ways to increase and expand an awareness of the ways in which computer-based telecommunications can be used to support the activities of small schools throughout the curriculum.**

19. **that the program development branches of the Department of Education and Training include the use of computer based technologies, eg. in curriculum guides.**

20. **that the Distance Education and Technolgoy branch produce computer based support programs for the Independent Study Program.**

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21. **that the use of MINET be expanded to connect to other networks.**

22. **that, as the increased use of CAL programs would require models and facilities needed to be available for the use of Manitoba teachers, the Department provide the hardware and facilities necessary at the Distance Education and Technology branch for modelling, for facilitating pilot projects and for the on-going training of teachers in CAL applications.**

23. **that the department establish a multimedia teacher training laboratory in rural Manitoba in cooperation with interested school divisions to allow for field testing and application of developing computer based materials.**

24. **that DET develop hands-on training sessions to demonstrate the integration of computer based learning resources within multi-grade and multi-subject classrooms, and the application of computer assisted learning programs to curricula in the small high school settings.**

DISTANCE DELIVERY SYSTEMS

Computer-assisted learning is primarily seen as an in-house teaching tool, although it does have some potential value with distance delivery. The other two technologies examined, however, are specifically intended as mechanisms for teachers to use in delivering their courses to students who are physically in a number of sites but instructionally gathered together in a single "classroom".

The success of these delivery systems depends very heavily on their effectiveness in creating a real "classroom" feeling, where students have a sense of joint venture with their classmates and with the teacher, and where interaction between students and teacher is quick, effective and relatively effortless. The mechanisms to provide that "classroom" are partly provided by good instructional techniques, well adapted to the delivery system, but are also very much dependent on the appropriate use of appropriate technologies.

Most of the technologies examined in this area (fibre-optics, microwave, satellite, teleconferencing, MINET, computer linkages, etc.) are provided or available through the Manitoba Telephone System. The Telephone System has an extensive and varied infrastructure throughout Manitoba, and the mandate to provide Manitoba's communications needs.

If the mission of providing community-based life-long learning is to be met, it is essential that the Manitoba Telephone System be an integral and committed partner in this mission.

Presently, however, there is a strong feeling among many educational stakeholders that the Manitoba Telephone System is lacking in knowledge of and commitment to the educational needs of the province.

We the Task Force recommend that the Government of Manitoba actively pursue the development of effective communication and interaction between itself, the educational partners and MTS for the long-term benefit of all parties involved.

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INTER-ACTIVE INSTRUCTIONAL TELEVISION

IITV provides a highly-transparent, educationally sound instructional delivery system which has proven its capabilities in the U.S., and to some degree in Manitoba. It allows for local control of course delivery, enrichment of course content with audio-visual aids, and the use of more specialized teachers than one small school alone could offer its students, as well as cost and other benefits of sharing resources between three or four schools. It is adaptable to use for other local community learning needs and for professional development, and there is the possibility of linkages of local clusters to provide for broader area course delivery or information sharing.

IITV can be provided by microwave or fibre-optic technologies with few regulatory barriers and with little difference in terms of technical quality or capabilities between the two. Fibre-optic systems are available only from MTS outside of the Perimeter, and are available only on a lease basis. Microwave is available primarily as a division-owned system. The choice of technology for any given system should be determined by the relative costs for that specific system of the two technologies; and by the school division's preference for owned/leased system arrangements.

There is a high dollar cost on these technologies, and total system set-up and operating costs need to be carefully considered in establishing the cost-effectiveness of IITV for any given site. There appears to be much potential value in joint efforts between divisions and joint efforts of divisions and government in negotiating for, establishing, and providing ongoing support services for these systems.

Total cost of microwave systems has not been fully established, since maintenance and financing costs for these are speculative. Total costs of fibre optic systems have not been fully established, since negotiations are very actively on-going between divisions and MTS at this time. However, there are strong indications that, for some divisions at least, there will be interactive television alternatives possible at a cost-effective price.

We the Task Force recommend:

25. **that the Task Force do further investigation into the total costs for microwave and fibre-optic interactive television systems to more accurately assess their potential value as a cost-effective, high quality educational delivery system for Manitoba.**

26. **that the Department of Education provide on-going support and assistance to school divisions developing interactive systems, and that, in co-operation with these divisions, the Department research and develop the application of this technology to Manitoba's needs.**

27. **that the Government of Manitoba, in conjunction with the Department of Education and Training, negotiate with MTS to establish reasonable rates for the delivery of interactive instructional television systems.**

28. **that the government of Manitoba act as a central agency for negotiating license fees for interactive television in Manitoba and that school divisions fund the cost of the licenses.**

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29. that microwave or fibre-optic be considered as the technologies of choice for the development of 2 way interactive television systems for educational use in Manitoba.

30. that school divisions give consideration to interconnectability with other technologies in selecting components for interactive television systems.

31. that school divisions considering interactive television systems price out both microwave and fibre-optic options for their specific requirements, and that they consider in their cost analyses ALL to-the-door and in-house set-up and on-going operating costs.

32. that school divisions, in considering interactive television systems, evaluate the advantages/disadvantages to their individual situation of system ownership vs leasing arrangements.

33. that school divisions evaluate the potential of inter-divisional school linkages for effective inter-active television systems.

34. that school divisions consider the potential for sharing of maintenance programs between a number of interactive systems.

35. that school divisions explore the potential for use of local systems by other organizations, with a view to:
- **partial cost recovery**
- **greater value of this technology to the community**
- **greater acceptance of this technology by the community**

36. that school divisions establish back-up systems of communication for possible times of interactive system failure. A phone line within each receiving room would be considered a minimal back-up system.

37. that the Distance Education and Technology branch provide co-ordinated technical training for users of interactive television systems, including training and reference guides.

38. that the Distance Education and Technology branch provide centralized technical and troubleshooting advice to users of educational interactive television systems.

SATELLITE-DELIVERED COURSES

"Satellite delivery" in practice is satellite-delivered point-to-multipoint video signals combined with two-way teleconferencing, and often enhanced with other interactive components eg. MINET, Fax, electronic blackboards. Its success depends heavily on the quality of the audio and video signals and on maximal use of the interactive components.

Satellite delivery provides a broad range of access to programming, since any location with electricity, a satellite dish, a TV and a phone line can act as a receiving site. It is particularly useful for province-wide program delivery and for delivery to remote sites.

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Satellite-delivered programming is deemed appropriate for adult learners and for mature, motivated Senior 3 and 4 students. It has proven successful for University course delivery, and in the Task Force's view, the expansion of satellite delivery of post-secondary education and adult training should be a critical part of community-based learning systems.

Because of the lower level of interactivity with satellite delivery and the difficulties in matching small-school timetables to a province-wide timetable, satellite is widely considered less desirable than local interactive TV systems for high school course delivery. However, even if IITV comes into widespread use in Manitoba, there will still be demand for province-wide delivery of some secondary programming. Satellite would still seem to be the delivery method of choice for remote communities, particularly in the north, for low-enrolment courses, specialist courses, and for province-wide delivery of French language programs or programs for the Hutterian schools.

Under current conditions, satellite delivery of high school programs fills a real need, but it does not appear to be cost-effective from a provincial perspective. It also does not integrate all of the potential enhancements into programming which are available, and which may increase the acceptability of this course delivery to high school students. It is important that satellite-delivered high school programming be continued and be improved for at least the near future.

We the Task Force recommend:

39. that the Department continue and enhance satellite delivery of high school and post-secondary programming, and that all appropriate supports to increase the success of this programming be provided.

40. that the Distance Education and Technology branch investigate all possible ways of reducing the costs of satellite course delivery which would not adversely affect production quality, including methods of reducing satellite time costs and reducing costs of all associated production components.

41. that the Distance Education and Technology branch pursue methods of cost-effectively increasing the number of hours available for satellite transmission e.g. through the use of compression.

42. that the Manitoba Satellite Network ensure a consistently high level of production values in all courses it delivers, through the following mechanisms:

- **the provision and maintenance of high technical quality in all delivery components**
- **the allocation of sufficient time and resources for production personnel and instructors to achieve this end**
- **the exploration and use of all appropriate interactive and interconnecting mechanisms to improve transparency and overall educational effectiveness**
- **the provision of technical personnel and resources to provide for quick and effective troubleshooting of all technical problems**
- **the provision of thorough inservicing training for instructors in the effective use of this technology**

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43. that the Minister of Education and Training instruct her staff to investigate possible opportunities for inter-provincial and provincial-state co-operation in educational satellite delivery.

CONCLUSION

In this interim report, we the Task Force

1. Identify the K-12 area, particularly small rural northern and isolated schools as the immediate priority area for distance education. This priority rests with the principle of equity and the need to respond to depopulation and scarcity of resources in rural and northern schools. The recommendations in this report provide the basis for immediate action to address the crisis in education of the viability of the small schools in rural and northern communities.

2. Present a direction for distance education in Manitoba.

   In developing distance education technologies for use in small schools, we, the task force found a powerful dynamic vision emerging among stakeholders. There is a strong sense that the time has come for new educational infrastructures to be built, created by superimposing distance education technologies upon the existing K-2 system and developing close cooperative partnerships between all educational sectors. Thus, the ultimate mission of distance education is to establish community based infrastructures for life-long learning which provide high quality education and training programs for all Manitobans. In carrying out this mission, the task force recommends several guiding principles and considerations, namely: equity, accountabilities, integration, excellence, partnerships, recognition of building blocks, flexibility and local involvement. This direction provides the foundation for all recommendations and future work of the Task Force.

3. Identify for the work the Task Force in preparation of the final report.

   The work of the task force includes:

   - developing linkages between the community, K-12 , post-secondary and all other sectors.
   - refining and working out details on the funding structure
   - completing the analysis on the benefits and applications of distance education technologies.
   - refining and completing the recommendations regarding the technical, policy and administrative steps required to carry out the direction of distance education in Manitoba.

Technical Advisory Subcommittee Summaries

Distance Education Technologies

1. Computer Assisted Learning
2. Interactive Instructional Television
3. Satellite Delivery

COMPUTER-ASSISTED LEARNING

SUMMARY

In the committee's view, computer-assisted learning is a good use of technology.

Computer learning has proven itself to be an effective delivery method with K - 12 students. Most children adapt readily to computer use, and interact effectively with the technology.

Computers are available in most Manitoba schools, and are used for a variety of enrichment and resource purposes with good results.

Computerized learning systems allow students to learn on an individualized basis.

When students are working within groups to develop higher level learning skills, this kind of technology can be a focal point for their learning.

The modern workplace is extensively computerized, and young people entering it are expected to have a degree of competence in computer use. By teaching students with this technology, the schools are also teaching them the technology.

Curriculum-matched software would have a wide variety of uses in Manitoba's schools, and was seen as a valuable potential teaching tool for all situations.

Curriculum-matched software would be most useful if developed for the low-end computers generally available in schools.

For the small high schools, availability of this software would allow for uses which would provide cost-efficiencies along with educational benefits. The committee discussed its potential as a delivery mechanism to allow the teaching of two or more related subjects at the same time by one teacher; and the value of computer-simulated science labs as a quality, inexpensive substitute for full physical lab set-ups within small high schools.

Since this technology is primarily designed as a support tool for in-classroom teachers, it must have teacher support if it is to be effectively used.

Computer-assisted learning is an emerging technology that needs to be considered in the long range planning of school divisions and of the Manitoba Department of Education and Training.

INTER-ACTIVE TELEVISION TECHNOLOGIES

SUMMARY

Inter-active television has proven itself to be an effective learning delivery system in American models. Current wisdom holds that for fully-interactive video and audio systems three to four sites per cluster is optimal from teaching perspective, although more are technically possible. The committee, therefore, looked at technologies and costs for three to four site systems with one channel per site.

Technologies considered were ham radio, microwave, and fibre-optic.

RADIO

The ham radio system currently in place in Midland School Division delivers adequate signals between two sites but not full interactivity between three. Improvements to equipment and antennae are underway in an attempt to improve service. The system has proven itself educationally useful, but not yet fully reliable.

Since the ham radio band is designated for amateur use, there could be challenges to a high level of educational use and loss of the right to use this band. The only other radio band capable of inter-active delivery is in UHF television channels, and currently there are strong regulatory barriers to any two-way use of this band.

Because of these limitations, the committee did not pursue the radio alternative further.

MICROWAVE

Microwave technology is capable of providing interactive systems of the quality and reliability necessary for regularly scheduled course offerings and high volume use. The necessary return transmitters are not currently available 'off the shelf' and would have to be manufactured to need. This may affect the cost estimates somewhat.

Because of the nature of the microwave band allocated to instructional TV, weather is not expected to affect transmission quality to a significant extent outside of extreme situations i.e. a tower going down.

Microwave is interconnectable with fibre, satellite, and cable TV and can be interconnected with data systems if subsystems are added. These are available at a reasonable cost.

Microwave allows for the use of one to eight channels concurrently. In the event of microwave coming into extensive local use, channel availability could become a problem.

The advent of compression technology is expected to allow considerably more channels to be available on microwave systems, at a lower cost/channel.

The feasibility of microwave systems for individual school clusters is very dependent on the area's topography and the availability of towers of suitable height and locale to provide 'line of sight' transmission. The antennae are not heavy, and do not require towers of unusual strength and height (200' or more). Towers with leasable space are expected to be available. Where they are not, the cost of installing a suitable tower, or strengthening an existing one, would add a significant extra expense. If a tower of over 200' was necessary, this expense could be prohibitive.

To ensure minimum down time, an adequate supply of spare parts for essential equipment must be kept on hand. Maintenance for microwave systems requires personnel with suitable training and test equipment. The cable companies have such personnel, and maintenance contracts may be negotiable with these agencies. The availability, expertise level and response time of such services will be highly variable from area to area. MTS will provide contract maintenance service only for systems it has installed. Training of in-division personnel for maintenance is also possible. The costs of training, maintenance, time and testing equipment for in-division maintenance would need to be considered relative to availability and cost of contract maintenance.

Environmental concerns were not deemed to be significant, given the low powers and frequencies involved and the height of the antenna from the ground.

Minor DOC regulatory blocks do exist for these systems but approval should not be difficult to obtain if systems are properly engineered.

Costs for microwave inter-active systems are determined by the parameters of the specific sites. However, sample estimates were examined:

Souris - Hartney - Wawanesa, with a one-way link to Brandon $154,000

Flin Flon - Snow Lake - Cranberry Portage $200,000

Arborg - Riverton $100,000

12 school link-up in the Interlake, with two hubs of 6 schools each interconnected to allow full interactivity between any 3 - 4 schools in each hub $620,000

These quotes do not include license fees (currently estimated at $1700 annually with a one-time initial fee of $550), costs of spares, depreciation, or maintenance costs.

FIBRE-OPTICS

Fibre-optic systems have a demonstrated ability to provide inter-active educational delivery systems with the quality and reliability required for regularly scheduled course delivery and high volume use.

Fibre-optic systems are interconnectable with satellite, microwave, and cable TV systems, and other data delivery systems.

MTS is the only carrier with extensive fibre-optic linkages in rural and northern Manitoba.

In the systems provided by MTS, there is the potential for 3 - 4 separate channels between schools. Expected compression advances would provide considerably more at lower incremental costs, if FM modulation is being used. Compression is not expected to result in decreased rates for single channel use.

MTS quotes for fibre-optic systems are on a five-year basis unless otherwise requested, and include installation of loops to the schools, terminal equipment and maintenance of the system over the contract term.

Quotes include a percentage write-off of equipment and installation costs over the contract term. Therefore the longer the contract term, the lower the one-time service charge will be. However, the length of contract needs to be considered with caution in light of the rapid changes occurring in technology. In the event of development of superior or less expensive systems, MTS would expect costs of installation for the initial system to be covered before major system changes would be made. In the event of add-ons or minor system changes being desired by the schools, the contract could be re-negotiated at any time to provide for such changes, usually at an increased monthly rate to cover the costs of installation.

Quotes are based on use of the system over the full school day, year round, and maintenance is provided on a school basis. Use of the facilities after school hours is allowed at no additional charge, but maintenance or restoration of service in case of failure may not be provided before the next school day. MTS has technicians available for all areas of the province, but response time will vary from area to area.

Estimated rates for fibre-optic systems vary with locations of and distances between sites, and on the relative positions of the sites on the fibre-optic network.

Negotiations of school divisions with MTS on rates for fibre-optic service are ongoing. Current sample estimates for a specific three-site system are based on an overall five-year cost of $430,000 - 440,000, with an initial set-up fee and monthly charges thereafter adding up to this figure. The percentage of the overall cost covered in the set-up fee is negotiable, and monthly rates will adjust upward or downward accordingly. (see attached sample quotes)

GENERAL CONSIDERATIONS - INTERACTIVE TELEVISION

Cost estimates for either system do not include classroom equipment i.e. cameras, monitors. Other extra costs for the division will include the costs of any facility refitting necessary for the housing of these systems. As well, each school will need personnel with the time and training to operate the in-house equipment.

Both audio and video components are delivered by the same channels in either system and technical failures will prevent any communication through the inter-active system. Back-up systems of communication may be necessary occasionally to maintain course delivery.

With either system, quantity purchasing of equipment would result in some cost savings. There would therefore be advantages to school divisions in joint negotiation.

5 YEAR PLAN FOR EVERGREEN

YEAR	MONTHLY RATE	SERVICE CHARGE
Upon turn up of service 92/93	--	$99,000
Date of turn up of service to August 31/93	No Charge	--
August 31/93 to December 31/93	$5,000.00 Month	--
January 1/94 to December 31/94	$5,150.00 Month	--
January 1/95 to December 31/95	$5,305.00 Month	--
January 1/96 to December 31/96	$5,465.00 Month	--
January 1/97 to December 31/97	$5,630.00 Month	--
January 1/98 to December 31/98	$5,790.00 Month	--

*The rates quoted above are for service between the hours of 9 to 5 only. There will be an additional charge for use of the service outside of those hours. Exclusive 24 hour use of the network the service charge will increase by $30K.

10 YEAR PLAN

YEAR	MONTHLY RATE	SERVICE CHARGE
Upon turn up of service 92/93		$ 55K
Date of turn up of service to August 31/93		
August 31/93 to December 31/93	$5,000.00 Month	
January 1/94 to December 31/94	$5,150.00 Month	
January 1/95 to December 31/95	$5,305.00 Month	
January 1/96 to December 31/96	$5,465.00 Month	
January 1/97 to December 31/97	$5,630.00 Month	
January 1/98 to December 31/98	$5,790.00 Month	
January 1/99 to December 31/99	$5,965.00 Month	
January 1/2000 to December 31/2000	$6,142.00 Month	
January 1/2001 to December 31/2001	$6,326.00 Month	
January 1/2002 to December 31/2002	$6,516.00 Month	
January 1/2003 to December 31/2003	$6,712.00 Month	

*The rates quoted above are for service between the hours of 9 to 5 only. There will be an additional charge for use of the service outside of those hours. Exclusive 24 hour use of the network the service charge will increase by $30K.

FRONTIER SCHOOL DIVISION

COMMUNITY	MONTHLY RATE	EQUIV. HOURLY RATE 1	O.T. SERVICE CHARGE
Thompson	$ 3,235	$20.22	$ 63,050
Wabowden	$ 3,235	$20.22	$ 63,050
Total	$ 6,470	$20.22/hr	$126,100

Notes

1 - based on 160 hrs per location, or 320 hours overall.

Because of the rapid advances in technology, any systems established now may be deemed obsolete within a very few years, and need extensive refitting to keep them 'up to speed'. Therefore, the length of time over which set-up costs are amortized needs to be carefully considered. From a technical perspective, a ten-year amortization period is deemed reasonable.

With any system established, its ability to add on or interconnect with at least existing technology needs to be carefully considered, and, insofar as is possible, its interconnectability with developing technology. The committee was uncertain as to the potential usefulness of multiple-channel systems to school divisions, but if more than one channel is desired or likely to be desired, these are available at lower incremental cost through fibre systems at the present time. Compression technology presently under development would allow addition of many more channels to either system at a reduced per channel cost.

Microwave and fibre-optic systems are readily inter-connectable, and hybrid systems containing portions of each technology may be the most cost-effective in certain situations.

COST-EFFECTIVENESS

Note: In committee discussions, "cost-effectiveness" was generally defined as "a cost significantly less than [(number of sites - 1) x $45,000/year]". This formula is based on the cost of an average teaching salary, and assumes that the interactive television system would operate the same length of time/day as a full-time teacher within the school.

Cost estimates for either system vary significantly with the parameters of the specific sites being selected for linking. However, in examining quotes for systems being currently negotiated by school divisions, there does seem to be reason to believe that interactive television systems are feasible cost-effectively for at least some areas of the province.

The committee found it very difficult to fairly and accurately compare relative costs of microwave systems and fibre-optic systems. Cost estimates obtained by divisions which were examined by the committee were for division-owned microwave systems and leased fibre-optic systems, which did not allow for ready comparison.

As well, because the microwave systems examined were to be division-owned, additional costs for spares, maintenance, tower rental, license fees, equipment housing, and financing needed to be included for fair comparison.

The actively on-going nature of negotiations between MTS and school divisions also made comparative pricing of systems difficult. MTS quotes have been dropping and the terms of the quotes have been changing during the time of the Task Force's evaluation.

MANITOBA SATELLITE NETWORK

DISCUSSION SUMMARY

DRAFT

MSN is the only agency currently delivering credit courses in mainstream education in Manitoba through satellite delivery.

"Satellite delivery" in fact is satellite point-to-multipoint delivery of a video signal with interactive components added primarily through teleconferencing, but also through electronic blackboards, MINET, videotapes, Fax, Canada Post and courier services. The point was made in discussion that teleconferencing predated the satellite transmission and may be the most essential element in course delivery. However, it was uniformly agreed that the video component is of real value in increasing the transparency and threfore the acceptability of the course to students.

STRUCTURE

MSN currently has studios available at the U of M, Videon in Winnipeg and Westman in Brandon. The U of W is currently developing its own studio, the U of Brandon uses the Westman studio.

Courses originate from these studios, then are transmitted via fibre links to the DOC uplink in Winnipeg. This uplink has been provided at no cost to MSN during the pilot years, but now will be charged for on a rental basis.

The satellite receives the signal from the uplink and transmits it, to be picked up by any appropriately focused dish. As well, cable operators in the province have agreed to receive the signal and transmit it via cable to 20 communities, which eliminates the need for a dish on those schools receiving cable.

Under the pilot, DET paid 50% of the cost of fixed receiving dishes for schools. These were deemed the least expensive that would receive the signal. The division is responsible for the rest of the dish cost, as well as costs of other receiving equipment.

Teleconferencing is provided on telephone bridges owned by MSN.

MINET connection is available through a low annual fee, and divisions are responsible for providing computers and modems for this service.

Costs for other forms of interactivity are shared to varying degrees by the divisions and the Department.

Overall cost for MSN course delivery in 1991-92 was $1140/hr. In 1992-93, it is planned to expand to 475 programming hours for a cost of $562,800.

FIRST YEAR DISTANCE EDUCATION (Dr. Charles Shobe)

The first two years of the pilot of FYDE are generally deemed to have been very successful. Student success rates, both in terms of completions/starts and grades achieved, are at least as good as the on-campus rates.

Cost/student is about the same as on-campus, with the benefits coming in decreased housing and transportation costs and in the social benefits of students remaining in their home communities.

Timetabling is beginning to be a problem since there are 10 time slots available and more than 10 courses being offered.

TECHNICAL CONCERNS

Transparency of system is critical to the success of the courses, and this includes transparency to the teacher as well as learner.

Transparency to the learner depends on maximal use of all interactive components available for course delivery, and - critically important - on consistent high-quality transmission of both video and sound. Students need to retain their focus on the teacher and the material being delivered, and not be distracted by technical glitches in the transmission so that focus shifts to the technology itself instead of the material the technology is delivering.

Inconsistency of production values between the three broadcast sites used by FYDE was considered a problem, and students taking several courses found the significant differences in quality distracting.

Problems with the teleconference lines were also noted as barriers to transparency and effective course delivery. These are being discussed with MTS and are hopefully being resolved.

It was felt that MSN does not have enough technical backup available to provide the quick and effective troubleshooting needed for reliable course delivery. This was particularly noted with the teleconfrencing bridges.

Transparency for the teacher means being able to deliver the course without worrying about cameras or other technical components. This demands advance scripting and thorough planning of the course delivery for each session, and good communication between instructor and technical staff in the studios.

A discussion on the use of robotics was inconclusive as to its value for instructional purposes, and it was deemed too expensive for general studio use. MTS does have a studio available with robotic control. It was noted that the technical capabilities of the course delivery mechanism often provides opportunities not available with classroom delivery i.e. split screen images, close-ups of small demonstration items or procedures, which enhance the overall educational value of the classes.

Dr. Shobe identified a number of instructional issues which were deemed to be more suited for presentation to the Instructional and Staff Development Advisory Committee.

TEACHER-MEDIATED COURSES

The committee has not yet fully examined this segment.

It has been noted that the chief barrier to successful use of satellite-delivered courses in high schools is in the lack of a common time-table. This limits the number of students able to access the courses. Given the variables involved in small-school timetabling, the development of a common timetable seems a virtual impossibility. The only suggestion made thus far to deal with this problem was to expand the number of times a given course is offered, to provide more opportunities for students to access it. this would require the availability of more hours of satellite transmission time.

It was noted that currently Teacher Mediated courses include one satellite delivery slot/month, while FYDE provides one satellite delivery/week.

It was noted that under the criteria used for the inter-active television [(no. of sites-1)x average teacher salary] that the teacher-mediated program does not seem to be currently cost-effective from the provincial perspective, although it certainly is from a school division perspective. A larger average number of receiving sites/course, and/or a lower cost per course for delivery, is needed to produce cost-effectiveness for the province. Improvement in both of these areas seems to be feasible. It was noted that MSN is currently considering a joint venture with SCN to access more hours of satellite time at a significantly lower cost/hour through the use of compression technology.

INTERCONNECTABILITY

MSN programming is on the same band as educational channels from other western provinces, so the fixed dishes at the schools can also be used to receive programs on these channels. However, because of the complex copyright laws, these programs cannot be videotaped or used for credit in Manitoba. Even allowing groups of students to watch these programs is in some cases technically illegal.

It would be possible to set up an inter-provincial course exchange system, but the programs provided through it would have to be specifically licensed for inter-provincial use at the outset. Obtaining access to currently existing programming from other provinces is virtually impossible due to the regulatory restrictions.

TASK FORCE ON DISTANCE EDUCATION AND TECHNOLOGY

SUMMARY COMMENTS ON SURVEY

Surveys Distributed: 45

Survey Responses: 26

Percentage of Survey Responses: 57%

In general, there is a fair amount of activity in school divisions around the province in the area of distance education technology. All divisions that responded indicated at least some familiarity with the various technologies and their uses and all indicated interest in continuing or expanding their involvement.

The needs identified that could be alleviated by applying distance education or other technologies were:

- improving course options for Grades 7 - 12
- staff development
- reducing teacher workload in small rural schools
- alleviating large classes
- alleviating timetable conflicts
- reducing the closure of small schools
- reducing transportation costs
- addressing the decline in student populations
- addressing the needs of Hutterian schools
- improving the use of Learning Resource Centres
- addressing the needs of special needs students

There has been some active research taking place across the province, mainly in the area of interactive television systems. There are many activities taking place already, in satellite and/or audio teleconference courses and in computers.

In the area of staff training, there is strong support shown in the responses for training staff in the area of interactive television. There is support shown for training in the area of multi-media technology and its uses. there is some support shown for training in the area of satellite technology, but there were several comments indicating that there is limited use seen for this technology in the future.

In the area of staff experience, there is generally some experience at all levels of the educational system.

In the area of space requirements, it was indicated that space would be made available wherever possible. Mainly this would entail a reassignment of existing space.

Schools are used for other educational purposes, mainly for adult evening courses and college/university courses. There is a strong interest indicated in the FYDE program.

The main choice indicated for technologies is the interactive television system. There is also some emphasis on multi-media classroom-based technologies and fax machines. It was also mentioned that government departments should be working together to look at the areas of funding and ensuring the Manitoba Telephone System establishes reasonable rates for school divisions.

For installation purposes, the range of dollars available was from $2,000 to $50,000. There was concern mentioned about costs, mainly due to budget cuts. It was also mentioned several times that the Department of Education and Training should provide support in this area.

For operating purposes, the range of dollars available was from $2,000 to $75,000. There was general agreement that reasonable costs should be supported by divisions.

The interest shown in this survey and in the areas of distance education and other technologies is encouraging, b ut there are obviously several large issues that need to be resolved.

FILE: TENROL91
28-Jun-92

SCHOOLS WITH ENROLLMENT LESS THAN
OR EQUAL TO 150 PUPILS

NO.	DIVISION	SCHOOL NAME	TOTAL ENROLLMENT 9/91
1	WINNIPEG	MONTCALM SCHOOL	22
1	WINNIPEG	INSTITUTIONAL PROGRAMS	36
1	WINNIPEG	FLORENCE NIGHTINGALE SCHOOL	115
1	WINNIPEG	ARGYLE HIGH	126
1	WINNIPEG	HARROW SCHOOL	146
2	ST. JAMES - ASSINIBOIA	PHOENIX ELEMENTARY	145
3	ASSINIBOINE SOUTH	CHAPMAN SCHOOL	129
6	ST. VITAL	MOUNTBATTEN SCHOOL	52
6	ST. VITAL	ST. AMANT EDUCATIONAL CENTRE	116
6	ST. VITAL	ECOLE GLENWOOD	138
6	ST. VITAL	GLENWOOD SCHOOL	141
8	NORWOOD	ARCHWOOD SCHOOL	121
8	NORWOOD	QUEEN ELIZABETH SCHOOL	133
9	RIVER EAST	KNOWLES CENTRE INC.	43
9	RIVER EAST	MCLEOD SCHOOL	126
9	RIVER EAST	SHERWOOD SCHOOL	129
10	SEVEN OAKS	COLLICUTT SCHOOL	140
11	LORD SELKIRK	SCANTERBURY SCHOOL	56
11	LORD SELKIRK	WALTER WHYTE SCHOOL	118
11	LORD SELKIRK	MAPLETON SCHOOL	143
12	TRANSCONA - SPRINGFIELD	GRAFTON SCHOOL	23
12	TRANSCONA - SPRINGFIELD	RICHLAND SCHOOL	29
12	TRANSCONA - SPRINGFIELD	HAZELRIDGE SCHOOL	35
12	TRANSCONA - SPRINGFIELD	PARK CIRCLE SCHOOL	41
13	AGASSIZ	SPRINGWELL ELEMENTARY	17
13	AGASSIZ	HOFER SCHOOL	21
13	AGASSIZ	GROSS COLONY SCHOOL	29
13	AGASSIZ	REYNOLDS ELEMENTARY	65
13	AGASSIZ	GARSON/TYNDALL SCHOOL	127
14	SEINE RIVER	LA VERENDRYE SCHOOL	13
14	SEINE RIVER	CO-OPERATIVE EDUCATION PROGRAMS	83
14	SEINE RIVER	LA BROQUERIE SCHOOL	115
14	SEINE RIVER	LA SALLE SCHOOL	138
16	BOUNDARY	GLENWAY COLONY SCHOOL	17
16	BOUNDARY	PINE CREEK SCHOOL	28
16	BOUNDARY	EMERSON ELEMENTARY	94
17	RED RIVER	MARSH RIVER SCHOOL	17
17	RED RIVER	SUNCREST COLONY SCHOOL	20
17	RED RIVER	CRYSTAL SPRINGS COLONY SCHOOL	31
17	RED RIVER	ECOLE LETELLIER	65
17	RED RIVER	ECOLE STE-AGATHE	98
17	RED RIVER	COLLEGE ST-JEAN-BAPTISTE	122
18	RHINELAND	KRONSTHAL SCHOOL	42
18	RHINELAND	NEW HOPE ELEMENTARY	45
18	RHINELAND	ROSENFELD ELEMENTARY	104
19	MORRIS-MACDONALD	PEACE VALLEY SCHOOL	22
19	MORRIS-MACDONALD	VERMILLION COLONY SCHOOL	25
19	MORRIS-MACDONALD	DOMAIN ELEMENTARY	48
19	MORRIS-MACDONALD	OAK BLUFF ELEMENTARY	58
19	MORRIS-MACDONALD	LOWE FARM SCHOOL	138

FILE: TENROL91
26-Jun-92

SCHOOLS WITH ENROLLMENT LESS THAN
OR EQUAL TO 150 PUPILS

NO.	DIVISION	SCHOOL NAME	TOTAL ENROLLMENT 9/91
20	WHITE HORSE PLAIN	LAKESIDE COLONY SCHOOL	13
20	WHITE HORSE PLAIN	STARLITE COLONY SCHOOL	14
20	WHITE HORSE PLAIN	HURON COLONY SCHOOL	16
20	WHITE HORSE PLAIN	POINT COLONY SCHOOL	19
20	WHITE HORSE PLAIN	ROSEDALE COLONY SCHOOL	22
20	WHITE HORSE PLAIN	JAMES VALLEY COLONY SCHOOL	22
20	WHITE HORSE PLAIN	MAXWELL COLONY SCHOOL	23
20	WHITE HORSE PLAIN	MILLTOWN ELEMENTARY	23
20	WHITE HORSE PLAIN	WALDHEIM ELEMENTARY	24
20	WHITE HORSE PLAIN	BARRICKMAN COLONY SCHOOL	28
20	WHITE HORSE PLAIN	IBERVILLE COLONY SCHOOL	28
20	WHITE HORSE PLAIN	BON HOMME COLONY SCHOOL	32
21	INTERLAKE	ROCK LAKE SCHOOL	14
21	INTERLAKE	CONCORD SCHOOL	18
21	INTERLAKE	KELSEY SCHOOL	21
21	INTERLAKE	NEW HAVEN SCHOOL	23
21	INTERLAKE	LIGHTLY SCHOOL	25
21	INTERLAKE	OMEGA SCHOOL	36
21	INTERLAKE	BRANT-ARGYLE SCHOOL	50
21	INTERLAKE	ROSSER SCHOOL	57
21	INTERLAKE	GROSSE ISLE SCHOOL	61
21	INTERLAKE	BALMORAL SCHOOL	118
22	EVERGREEN	WINNIPEG BEACH SCHOOL	142
23	LAKESHORE	MARBLE RIDGE SCHOOL	14
23	LAKESHORE	BROAD VALLEY SCHOOL	21
23	LAKESHORE	INWOOD SCHOOL	70
24	PORTAGE LA PRAIRIE	NORQUAY COLONY SCHOOL	15
24	PORTAGE LA PRAIRIE	BRENNAN SCHOOL	18
24	PORTAGE LA PRAIRIE	INGLESIDE SCHOOL	22
24	PORTAGE LA PRAIRIE	AIRPORT COLONY SCHOOL	22
24	PORTAGE LA PRAIRIE	SUNNYSIDE SCHOOL	22
24	PORTAGE LA PRAIRIE	BRANTWOOD SCHOOL	22
24	PORTAGE LA PRAIRIE	NEW ROSEDALE SCHOOL	23
24	PORTAGE LA PRAIRIE	WESTBOURNE SCHOOL	24
24	PORTAGE LA PRAIRIE	GOOD HOPE COLONY SCHOOL	26
24	PORTAGE LA PRAIRIE	WOODLAND COLONY SCHOOL	28
24	PORTAGE LA PRAIRIE	SOMMERFELD COLONY SCHOOL	29
24	PORTAGE LA PRAIRIE	POPLAR POINT SCHOOL	34
24	PORTAGE LA PRAIRIE	HIGH BLUFF SCHOOL	87
24	PORTAGE LA PRAIRIE	VICTORIA SCHOOL	118
25	MIDLAND	ROSEBANK COLONY SCHOOL	12
25	MIDLAND	ROSEISLE SCHOOL	14
25	MIDLAND	CLEARVIEW COLONY SCHOOL	17
25	MIDLAND	WINGHAM SCHOOL	17
25	MIDLAND	BOYNE VIEW SCHOOL	30
25	MIDLAND	MAPLE CREEK SCHOOL	41
25	MIDLAND	GRAYSVILLE SCHOOL	42
25	MIDLAND	ROLAND ELEMENTARY	94
25	MIDLAND	MIAMI ELEMENTARY	115
25	MIDLAND	MIAMI COLLEGIATE	148

FILE: TENROL91
26-Jun-92

SCHOOLS WITH ENROLLMENT LESS THAN
OR EQUAL TO 150 PUPILS

NO.	DIVISION	SCHOOL NAME	TOTAL ENROLLMENT 9/91
26	GARDEN VALLEY	EKFRID SCHOOL	21
26	GARDEN VALLEY	GNADENTHAL SCHOOL	23
26	GARDEN VALLEY	BIRKENHEAD SCHOOL	30
26	GARDEN VALLEY	BLUMENFELD SCHOOL	58
26	GARDEN VALLEY	HOCHFELD SCHOOL	62
26	GARDEN VALLEY	SOUTHWOOD ELEMENTARY	144
27	PEMBINA VALLEY	SNOWFLAKE ELEMENTARY	21
27	PEMBINA VALLEY	WEST VALLEY ELEMENTARY	24
27	PEMBINA VALLEY	CLEARWATER ELEMENTARY	38
27	PEMBINA VALLEY	THOMAS GREENWAY COLLEGIATE	104
27	PEMBINA VALLEY	CRYSTAL CITY ELEMENTARY	131
28	MOUNTAIN	KAMSLEY SCHOOL	17
28	MOUNTAIN	ST. ALPHONSE ELEMENTARY	21
28	MOUNTAIN	VALLEYVIEW SCHOOL	21
28	MOUNTAIN	EVERGREEN COLONY SCHOOL	23
28	MOUNTAIN	FAIRHOLME COLONY SCHOOL	27
28	MOUNTAIN	ECOLE ST-LEON	29
28	MOUNTAIN	MARIAPOLIS ELEMENTARY	31
28	MOUNTAIN	STE. MARIE SCHOOL	48
28	MOUNTAIN	SOMERSET COLLEGIATE	61
28	MOUNTAIN	RICHARD SCHOOL	84
28	MOUNTAIN	NOTRE DAME COLLEGIATE	121
29	TIGER HILLS	GLENORA ELEMENTARY	18
29	TIGER HILLS	WINDY BAY SCHOOL	21
29	TIGER HILLS	BOYNE VALLEY SCHOOL	26
29	TIGER HILLS	SHAMROCK SCHOOL	29
29	TIGER HILLS	SANDY BANK SCHOOL	40
29	TIGER HILLS	CYPRESS RIVER ELEMENTARY	50
29	TIGER HILLS	BELMONT ELEMENTARY	56
29	TIGER HILLS	BALDUR SCHOOL	102
29	TIGER HILLS	HOLLAND ELEMENTARY	119
29	TIGER HILLS	TREHERNE HIGH	128
30	PINE CREEK	FOREST HOME SCHOOL	13
30	PINE CREEK	BEAVER CREEK SCHOOL	19
30	PINE CREEK	WEST PLAINS SCHOOL	20
30	PINE CREEK	BAKER SCHOOL	21
30	PINE CREEK	CASCADE COLONY SCHOOL	24
30	PINE CREEK	HIDDEN VALLEY SCHOOL	25
30	PINE CREEK	MULLER SCHOOL	25
30	PINE CREEK	PLUMAS ELEMENTARY	58
30	PINE CREEK	LANGRUTH ELEMENTARY	64
31	BEAUTIFUL PLAINS	WILLERTON SCHOOL	23
31	BEAUTIFUL PLAINS	RIVERSIDE COLONY SCHOOL	32
31	BEAUTIFUL PLAINS	SPRUCE WOODS SCHOOL	35
31	BEAUTIFUL PLAINS	RIVERBEND COLONY SCHOOL	37
31	BEAUTIFUL PLAINS	BROOKDALE SCHOOL	54
31	BEAUTIFUL PLAINS	ARDEN SCHOOL	67
31	BEAUTIFUL PLAINS	J. M. YOUNG SCHOOL	88
32	TURTLE RIVER	ROBERTSON SCHOOL	15
32	TURTLE RIVER	AMARANTH SCHOOL	34

FILE: TENROL91
28-Jun-92

SCHOOLS WITH ENROLLMENT LESS THAN
OR EQUAL TO 150 PUPILS

NO.	DIVISION	SCHOOL NAME	TOTAL ENROLLMENT 9/91
32	TURTLE RIVER	GRASS RIVER SCHOOL	41
32	TURTLE RIVER	KELWOOD SCHOOL	52
32	TURTLE RIVER	ECOLE LAURIER	114
32	TURTLE RIVER	GLENELLA SCHOOL	144
33	DAUPHIN - OCHRE AREA #1	OCHRE RIVER SCHOOL	101
33	DAUPHIN - OCHRE AREA #1	SMITH-JACKSON SCHOOL	112
34	DUCK MOUNTAIN	PINE RIVER ELEMENTARY	45
34	DUCK MOUNTAIN	PHILOMENE CHARTRAND SCHOOL	139
34	DUCK MOUNTAIN	RORKETON SCHOOL	139
35	SWAN VALLEY	MAFEKING SCHOOL	89
35	SWAN VALLEY	BOWSMAN SCHOOL	136
35	SWAN VALLEY	BENITO SCHOOL	144
36	INTERMOUNTAIN	GILBERT PLAINS COLLEGIATE	77
37	PELLY TRAIL	OAKBURN ELEMENTARY	38
37	PELLY TRAIL	ELPHINSTONE ELEMENTARY	41
37	PELLY TRAIL	INGLIS ELEMENTARY	78
37	PELLY TRAIL	ROSSBURN COLLEGIATE	112
37	PELLY TRAIL	BINSCARTH ELEMENTARY	123
37	PELLY TRAIL	ROSSBURN ELEMENTARY	148
38	BIRDTAIL RIVER	DECKER COLONY SCHOOL	36
38	BIRDTAIL RIVER	FOXWARREN SCHOOL	60
38	BIRDTAIL RIVER	MINIOTA SCHOOL	65
38	BIRDTAIL RIVER	KENTON SCHOOL	73
38	BIRDTAIL RIVER	ECOLE ST. LAZARE	121
39	ROLLING RIVER	COOL SPRING COLONY SCHOOL	16
39	ROLLING RIVER	GLENDALE SCHOOL	17
39	ROLLING RIVER	DEERBOINE COLONY SCHOOL	28
39	ROLLING RIVER	OAK RIVER ELEMENTARY	73
39	ROLLING RIVER	SANDY LAKE SCHOOL	80
39	ROLLING RIVER	ONANOLE ELEMENTARY	92
39	ROLLING RIVER	RAPID CITY SCHOOL	97
39	ROLLING RIVER	DOUGLAS ELEMENTARY	111
39	ROLLING RIVER	ERICKSON ELEMENTARY	140
40	BRANDON	BEECHER SCHOOL	18
40	BRANDON	DAVID LIVINGSTONE SCHOOL	34
40	BRANDON	ALEXANDER SCHOOL	49
40	BRANDON	SACRED HEART JUNIOR HIGH	56
40	BRANDON	GREEN ACRES SCHOOL	142
41	FORT LA BOSSE	PLAINVIEW COLONY SCHOOL	26
41	FORT LA BOSSE	SINCLAIR SCHOOL	34
41	FORT LA BOSSE	KOLA SCHOOL	40
41	FORT LA BOSSE	OAK LAKE JUNIOR HIGH	53
41	FORT LA BOSSE	ASSINIBOINE ELEMENTARY	65
41	FORT LA BOSSE	MCAULEY SCHOOL	73
41	FORT LA BOSSE	RESTON ELEMENTARY	141
42	SOURIS VALLEY	MAPLE GROVE COLONY SCHOOL	15
42	SOURIS VALLEY	GREEN ACRES COLONY SCHOOL	16
42	SOURIS VALLEY	NATURE VALLEY COLONY SCHOOL	24
42	SOURIS VALLEY	NEWDALE COLONY SCHOOL	25
42	SOURIS VALLEY	SOURIS RIVER COLONY SCHOOL	33

FILE: TENROL91
28-Jun-92

SCHOOLS WITH ENROLLMENT LESS THAN
OR EQUAL TO 150 PUPILS

NO.	DIVISION	SCHOOL NAME	TOTAL ENROLLMENT 9/91
44	TURTLE MOUNTAIN	MAYFAIR COLONY SCHOOL	12
44	TURTLE MOUNTAIN	HOLMFIELD COLONY SCHOOL	22
44	TURTLE MOUNTAIN	WILLOW CREEK COLONY SCHOOL	27
44	TURTLE MOUNTAIN	WELWOOD SCHOOL	33
44	TURTLE MOUNTAIN	NINETTE ELEMENTARY	35
44	TURTLE MOUNTAIN	MINTO SCHOOL	39
44	TURTLE MOUNTAIN	DUNREA ELEMENTARY	43
44	TURTLE MOUNTAIN	CARTWRIGHT SCHOOL	93
47	WESTERN	MASON SCHOOL	25
48	FRONTIER	LONGBODY CREEK SCHOOL	8
48	FRONTIER	DISBROWE SCHOOL	9
48	FRONTIER	COLD LAKE SCHOOL	14
48	FRONTIER	MATHESON ISLAND SCHOOL	17
48	FRONTIER	PINE DOCK SCHOOL	22
48	FRONTIER	MARY NEWELL SCHOOL	23
48	FRONTIER	STEVENSON ISLAND SCHOOL	25
48	FRONTIER	SAN ANTONIO SCHOOL	26
48	FRONTIER	PIKWITONEI SCHOOL	31
48	FRONTIER	THICKET PORTAGE SCHOOL	43
48	FRONTIER	JULIE LINDAL SCHOOL	43
48	FRONTIER	FALCON BEACH SCHOOL	44
48	FRONTIER	MOUNTAIN VIEW SCHOOL	62
48	FRONTIER	GYPSUMVILLE SCHOOL	70
48	FRONTIER	LAKEFRONT SCHOOL	78
48	FRONTIER	SKOWNAN SCHOOL	95
48	FRONTIER	CORMORANT LAKE SCHOOL	109
48	FRONTIER	MARY PORTER SCHOOL	112
48	FRONTIER	D. R. HAMILTON SCHOOL	117
48	FRONTIER	DUCK BAY SCHOOL	125
48	FRONTIER	BROCHET SCHOOL	134
48	FRONTIER	WATERHEN SCHOOL	140
2439	SPRAGUE CONSOLIDATED	ROSS L. GRAY SCHOOL	137

MANITOBA EDUCATION AND TRAINING

DISTANCE EDUCATION TECHNOLOGY TASK FORCE

ALTERNATIVE TECHNOLOGIES

NEEDS ASSESSMENT

PURPOSE:

Education and Training Minister Rosemary Vodrey has appointed a Task Force to determine present and future needs for distance education, particularly the needs associated with the operation of small rural and remote high schools.

A number of Manitoba school divisions are currently exploring the application of alternative technologies to respond to such changing conditions as lowered school enrolments and increasing demands for educational services. This needs assessment survey is being conducted to gather information to determine the Department's and school divisions' roles in supporting such alternatives as:

- inter-active satellite television;
- local two-way, inter-active television systems;
- in classroom technologies such as computer-based, multi-media laser disk or CD ROM.

Please answer all questions as completely as possible. Inquiries about this questionnaire should be forwarded to: **Distance Education Task Force Secretary, Louise Hardy, C/O The Distance Education & Technology Branch, 1970 Ness Ave. Wpg. MB R3J 0Y9, or call 945-8806.**

INFORMATION:

1. What are the most pressing educational needs faced by your division which you believe could be alleviated through the application of distance education or other technologies?

_____

_____

_____

_____

_____

2. List any research or innovative activities your division has undertaken to apply distance education or classroom-based technologies to meet these needs.

_____
_____
_____
_____
_____

3. What commitment to staff training would your division be prepared to participate in:

(A) local distance education systems such as two-way interactive television;

_____

(B) classroom-based, computer Assisted Learning, CD ROM/laser disk multi-media workstations

_____

(C) centralized distance education services such as satellite television programs/courses.

_____

4. In general terms, what level of experience do you feel your staff have in the use of educational technologies:

	None	Some	A Great Deal
Early Years	____	____	_____
Middle Years	____	____	_____
Senior Years	____	____	_____

* Please indicate which technologies your teachers use:

_____

5. How much and what kind of space would be available to establish facilities for one or more of the technologies identified in question # 3? _____

_____
_____

6. Are your schools used for other educational purposes (example, adult evening classes, university courses?) If not, what other purposes would you wish to see your schools used for in the future? Please describe and indicate if they are revenue producing.

_____

_____

_____

_____

7. Please describe the types of distance education or other technologies you would choose to meet your division's needs and how these would enhance your current programming.

_____

_____

_____

_____

8. What level of funding would your division be willing to commit to the systems identified in #7:
(A) For installation: _____

(B) For on-going operating: _____

Thank-you for taking the time to complete this questionnaire. All comments will be kept confidential.

Please return to the address shown on page #1 no later than June 1, 1992.

ÉDUCATION ET FORMATION PROFESSIONNELLE MANITOBA

GROUPE DE TRAVAIL SUR L'ÉDUCATION A DISTANCE ET DE LA TECHNOLOGIE

TECHNOLOGIES DE RECHANGE

ÉVALUATION DES BESOINS

OBJET:

Mme Rosemary Vodrey, ministre de l'Éducation et de la Formation professionnelle, a mis sur pied un groupe de travail et l'a chargé de définir les besoins actuels et futurs en matière d'éducation à distance, notamment dans le contexte des petites écoles rurales et des écoles secondaires situées dans les régions isolées.

Un certain nombre de divisions scolaires du Manitoba explorent actuellement la possibilité d'adopter des technologies de rechange en vue de répondre à des conditions changeantes comme la diminution du nombre d'inscriptions et la demande croissante de services d'éducation. La présente évaluation des besoins a pour objet de recueillir de l'information à propos de l'appui devant être fourni par le Ministère et les divisions scolaires pour permettre, entre autres, l'application des technologies suivantes:

- cours télévisuels interactifs, par satellite;
- systèmes télévisuels locaux, assurant la communication dans les deux sens;
- technologies d'enseignement en salle de classe faisant appel à des ordinateurs, à des disques à lecture laser multi-médias ou, encore, à des bases de données sur CD ROM multi-médias.

Vous êtes prié de nous fournir des réponses aussi complètes que possible. Si vous avez des questions à propos du questionnaire, veuillez vous mettre en rapport avec: Secrétaire du Groupe de travail sur l'éducation à distance et de la technologie, Mme Louise Hardy, à l'attention de la Direction de l'éducation à distance et de la technologie, 1970, avenue Ness, Winnipeg (Manitoba), R3J 0Y9, ou appeler au 945-8806.

5. Quelle est la nature et quelle est la superficie de l'espace que vous pourriez consacrer à l'établissement d'une ou de plusieurs des technologies énoncées au point 3?

6. Offre-t-on d'autres cours dans vos écoles? (Par exemple, cours du soir pour adultes, cours universitaires.) Dans la négative, quels cours aimeriez-vous que l'on offre dans vos écoles à l'avenir? Veuillez les décrire et indiquer si ces cours produiraient des revenues.

7. Veuillez décrire les technologies d'enseignement ou autres que vous adopteriez pour satisfaire aux besoins de votre division et comment elles amélioreraient vos programmes actuels.

8. Quel est le montant que votre division serait prête à consacrer au financement des systèmes décrits au point précédent?

   (a) pour la mise en place:

   (b) pour l'exploitation continue:

Nous vous remercions d'avoir bien voulu répondre à ce questionnaire. Nous assurerons la confidentialité de vos réponses.

Nous vous prions de nous retourner le questionnaire à l'adresse indiquées à la page 1 d'ici le 1 juin 1992.

INFORMATION

1. Quels sont les besoins en éducation les plus pressants auxquels votre division pourrait mieux satisfaire à l'aide de technologies d'éducation à distance ou autres?

2. Énumérez les recherches ou les activités innovatrices que votre division a entreprises pour appliquer des technologies d'éducation à distance ou d'autres techniques d'enseignement en salle de classe en vue de répondre à ces besoins.

3. Dans quelle mesure votre division serait-elle prête à participer à la formation nécessaire dans le contexte des technologies suivantes?

   (a) Systèmes locaux d'éducation à distance, comme les cours télévisuels dans les deux sens;

   (b) Apprentissage assisté par ordinateur - postes de travail multi-médias faisant appel à une base de données sur CD-ROM ou à un disque à lecture laser;

   (c) Services centralisés d'éducation à distance comme des programmes et des cours assurés par satellite.

4. De façon générale, quelle est, d'après vous, l'expérience que possèdent vos employés de l'utilisation des technologies d'enseignement?

	Aucune	Un peu	Beaucoup
Cycle inférieur			
Cycle moyen			
Cycle supérieur			

   * Quelles sont les technologies appliquées par vos enseignants?